L Number	Hits	Search Text	DB	Time stamp
1	5	castellations and corrugations and interconnection	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 14:29
2	0	20030234447.URPN.	USPAT	2004/08/20 14:25
3	4	("5801446" | "6213347" | "6228680" | "6245583").PN.	USPAT	2004/08/20 14:27
4	0	6696757.URPN.	USPAT	2004/08/20 14:28
5	2	6365958.pn.	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 16:15
6	4	6365958.URPN.	USPAT	2004/08/20 14:29
7	11	pad and (copper or Cu) and (tin or Sn) and (groove or grooved) and nascent	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 16:18
8	11	(pad and (copper or Cu) and (tin or Sn) and (groove or grooved) and nascent) not 6365958.URPN.	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 16:17
9	8	(pad and (copper or Cu) and (tin or Sn) and (groove or grooved) and nascent) not 6365958.URPN. not 6365958.pn. not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not (castellations and corrugations and interconnection)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 16:52
10	1410	pad and (copper or Cu) and (tin or Sn) and (groove or grooved)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 17:01
11	297	(pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 16:53
12	0	20030234447.URPN.	USPAT	2004/08/20 16:27
13	0	20030230809.URPN.	USPAT	2004/08/20 16:28
14	0	20020125569.URPN.	USPAT	2004/08/20 16:34
15	0	6696757.URPN.	USPAT	2004/08/20 16:38
16	4	("5801446" | "6213347" | "6228680" | "6245583").PN.	USPAT	2004/08/20 16:38
17	0	6472763.URPN.	USPAT	2004/08/20 16:42
18	2	("5946590" | "6030512").PN.	USPAT	2004/08/20 16:42
19	13	5288007.URPN.	USPAT	2004/08/20 16:47
20	870	interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 20:49
21	115	(interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 16:57

22	38	((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not 5288007.URPN. not (("5946590" | "6030512").PN.) not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not ((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not (pad and (copper or Cu) and (tin or Sn) and (groove or grooved) and nascent) not 6365958.URPN. not 6365958.pn. not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not (castellations and corrugations and interconnection)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 16:54
23	582	(pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 16:56
24	103	((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 16:56
25	39	(((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not 5288007.URPN. not (("5946590" | "6030512").PN.) not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not ((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not (pad and (copper or Cu) and (tin or Sn) and (groove or grooved) and nascent) not 6365958.URPN. not 6365958.pn. not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not (castellations and corrugations and interconnection)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 16:56
26	327	(interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 16:59
27	65	((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 16:59
28	13	(((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not (((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not 5288007.URPN. not (("5946590" | "6030512").PN.) not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not ((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not (pad and (copper or Cu) and (tin or Sn) and (groove or grooved) and nascent) not 6365958.URPN. not 6365958.pn. not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not (castellations and corrugations and interconnection)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 16:57

29	354	interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 16:57
30	73	(interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (crack or cracks)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 17:14
31	43	((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not (((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not 5288007.URPN. not (("5946590" | "6030512").PN.) not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not ((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not (pad and (copper or Cu) and (tin or Sn) and (groove or grooved) and nascent) not 6365958.URPN. not 6365958.pn. not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not (castellations and corrugations and interconnection)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 16:59
32	193	(interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and stress	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 17:13
33	69	((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and stress) and (delaminat$4 or fracture)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 17:13
34	10	(((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not (((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not 5288007.URPN. not (("5946590" | "6030512").PN.) not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not ((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not (pad and (copper or Cu) and (tin or Sn) and (groove or grooved) and nascent) not 6365958.URPN. not 6365958.pn. not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not (castellations and corrugations and interconnection)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 17:01

35	569	pad and (copper or Cu) and (tin or Sn) and (textured or texture)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 17:01
36	130	(pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and (crack or cracks)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 17:27
37	51	((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not (((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not 5288007.URPN. not (("5946590" | "6030512").PN.) not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not ((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not (pad and (copper or Cu) and (tin or Sn) and (groove or grooved) and nascent) not 6365958.URPN. not 6365958.pn. not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not (castellations and corrugations and interconnection)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 17:13
38	260	(pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and stress	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 17:13
39	94	((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and stress) and (delaminat$4 or fracture)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 17:13

40	16	(((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and stress) and (delaminat$4 or fracture)) not ((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not (((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not 5288007.URPN. not (("5946590" | "6030512").PN.) not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not ((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not (pad and (copper or Cu) and (tin or Sn) and (groove or grooved) and nascent) not 6365958.URPN. not 6365958.pn. not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not (castellations and corrugations and interconnection)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 17:14
41	164	(interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (solder or ball)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 17:14
42	118	((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (solder or ball)) not (((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and stress) and (delaminat$4 or fracture)) not ((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not (((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not 5288007.URPN. not (("5946590" | "6030512").PN.) not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not ((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not (pad and (copper or Cu) and (tin or Sn) and (groove or grooved) and nascent) not 6365958.URPN. not 6365958.pn. not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not (castellations and corrugations and interconnection)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 17:37
43	9866	(BGA or solder) and (crack or cracks)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 17:31

45	1063	((BGA or solder) and (crack or cracks)) and (grooves or grooved)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 17:29
46	1	((BGA or solder) and (crack or cracks)) and ((interconnection or pad) near (grooves or grooved))	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 17:31
47	1586	(BGA or solder) and (texture or textured)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 17:31
48	6	((BGA or solder) and (texture or textured)) and ((interconnection or pad) near (texture or textured))	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 17:36
49	0	6670222.URPN.	USPAT	2004/08/20 17:33
50	12	("4837130" | "5022043" | "5168401" | "5268978" | "5485481" | "5580466" | "5609778" | "5696666" | "5708294" | "5715263" | "5804882" | "6397465").PN.	USPAT	2004/08/20 17:33
51	0	((BGA or solder) and (texture or textured)) and ((interconnection or pad) near (castellations or corrugations))	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 17:37
52	30	((interconnection or pad) near (castellations or corrugations))	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 17:40

| 53 | 30 | (((interconnection or pad) near (castellations or corrugations))) not (("4837130" | "5022043" | "5168401" | "5268978" | "5485481" | "5580466" | "5609778" | "5696666" | "5708294" | "5715263" | "5804882" | "6397465").PN.) not (((BGA or solder) and (texture or textured)) and ((interconnection or pad) near (texture or textured))) not (((BGA or solder) and (crack or cracks)) and ((interconnection or pad) near (grooves or grooved))) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (solder or ball)) not (((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and stress) and (delaminat$4 or fracture)) not ((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not (((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not 5288007.URPN. not (("5946590" | "6030512").PN.) not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not ((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not (pad and (copper or Cu) and (tin or Sn) and (groove or grooved) and nascent) not 6365958.URPN. not 6365958.pn. not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not (castellations and corrugations and interconnection) | USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB | 2004/08/20 17:40 |
| 54 | 7 | ((BDA or solder) near (castellations or corrugations)) | USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB | 2004/08/20 17:40 |

55	2	(((BDA or solder) near (castellations or corrugations))) not (((interconnection or pad) near (castellations or corrugations))) not (("4837130" | "5022043" | "5168401" | "5268978" | "5485481" | "5580466" | "5609778" | "5696666" | "5708294" | "5715263" | "5804882" | "6397465").PN.) not (((BGA or solder) and (texture or textured)) and ((interconnection or pad) near (texture or textured))) not (((BGA or solder) and (crack or cracks)) and ((interconnection or pad) near (grooves or grooved))) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (solder or ball)) not (((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and stress) and (delaminat$4 or fracture)) not ((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not (((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not 5288007.URPN. not (("5946590" | "6030512").PN.) not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not ((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not (pad and (copper or Cu) and (tin or Sn) and (groove or grooved) and nascent) not 6365958.URPN. not 6365958.pn. not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not (castellations and corrugations and interconnection)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 18:51
56	2079	438/108	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 20:11
57	151	438/108 and (castellations or corrugations or grooves or texture or textured or contoured)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 20:11

58	143	(438/108 and (castellations or corrugations or grooves or texture or textured or contoured)) not (((BDA or solder) near (castellations or corrugations))) not ((((interconnection or pad) near (castellations or corrugations))) not (("4837130" | "5022043" | "5168401" | "5268978" | "5485481" | "5580466" | "5609778" | "5696666" | "5708294" | "5715263" | "5804882" | "6397465").PN.) not (((BGA or solder) and (texture or textured)) and ((interconnection or pad) near (texture or textured))) not (((BGA or solder) and (crack or cracks)) and ((interconnection or pad) near (grooves or grooved))) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (solder or ball)) not (((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and stress) and (delaminat$4 or fracture)) not ((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not (((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not 5288007.URPN. not (("5946590" | "6030512").PN.) not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not ((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not (pad and (copper or Cu) and (tin or Sn) and (groove or grooved) and nascent) not 6365958.URPN. not 6365958.pn. not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not (castellations and corrugations and interconnection)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 20:11
59	0	20030064546.URPN.	USPAT	2004/08/20 18:54
60	0	6580174.URPN.	USPAT	2004/08/20 18:58
61	3	("5842275" | "5875102" | "6282782").PN.	USPAT	2004/08/20 18:58
62	18	5875102.URPN.	USPAT	2004/08/20 18:59
63	2	6426880.URPN.	USPAT	2004/08/20 19:05
64	18	("4442966" | "4818823" | "4836435" | "5241134" | "5344343" | "5446244" | "5519251" | "5545589" | "5628919" | "5823801" | "5828128" | "5879206" | "5889657" | "6005290" | "6040626" | "6083666" | "6137063" | "6324754").PN.	USPAT	2004/08/20 19:05
65	1	6426241.URPN.	USPAT	2004/08/20 19:09
66	10	("4700473" | "4746621" | "5638598" | "6006764" | "6035527" | "6046910" | "6125531" | "6134118" | "6143646" | "6211487").PN.	USPAT	2004/08/20 19:10
67	27	6088236.URPN.	USPAT	2004/08/20 19:14
68	27	6088236.URPN.	USPAT	2004/08/20 19:15
69	0	6538335.URPN.	USPAT	2004/08/20 19:16
70	7	("4937653" | "5185073" | "5929521" | "5962921" | "5977642" | "6088236" | "6150255").PN.	USPAT	2004/08/20 19:16
71	26	5929521.URPN.	USPAT	2004/08/20 19:20
72	0	6583517.URPN.	USPAT	2004/08/20 19:21

73	13	("5736790" | "5874780" | "5929521" | "5977632" | "6002172" | "6137184" | "6143639" | "6162997" | "6163957" | "6320254" | "6396156" | "6399896" | "6433426").PN.	USPAT	2004/08/20 19:21
74	146	4937653.URPN.	USPAT	2004/08/20 19:26
75	1241	438/597	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 20:15
76	101	438/597 and (castellations or corrugations or grooves or texture or textured or contoured)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 20:15

| 77 | 98 | (438/597 and (castellations or corrugations or grooves or texture or textured or contoured)) not 4937653.URPN. not (("5736790" \| "5874780" \| "5929521" \| "5977632" \| "6002172" \| "6137184" \| "6143639" \| "6162997" \| "6163957" \| "6320254" \| "6396156" \| "6399896" \| "6433426").PN.) not 5929521.URPN. not (("4937653" \| "5185073" \| "5929521" \| "5962921" \| "5977642" \| "6088236" \| "6150255").PN.) not 6088236.URPN. not (("4700473" \| "4746621" \| "5638598" \| "6006764" \| "6035527" \| "6046910" \| "6125531" \| "6134118" \| "6143646" \| "6211487").PN.) not 6426241.URPN. not (("4442966" \| "4818823" \| "4836435" \| "5241134" \| "5344343" \| "5446244" \| "5519251" \| "5545589" \| "5628919" \| "5823801" \| "5828128" \| "5879206" \| "5889657" \| "6005290" \| "6040626" \| "6083666" \| "6137063" \| "6324754").PN.) not 6426880.URPN. not 5875102.URPN. not (("5842275" \| "5875102" \| "6282782").PN.) not (438/108 and (castellations or corrugations or grooves or texture or textured or contoured)) not (((BDA or solder) near (castellations or corrugations))) not (((interconnection or pad) near (castellations or corrugations))) not (("4837130" \| "5022043" \| "5168401" \| "5268978" \| "5485481" \| "5580466" \| "5609778" \| "5696666" \| "5708294" \| "5715263" \| "5804882" \| "6397465").PN.) not (((BGA or solder) and (texture or textured)) and ((interconnection or pad) near (texture or textured))) not (((BGA or solder) and (crack or cracks)) and ((interconnection or pad) near (grooves or grooved))) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (solder or ball)) not (((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and stress) and (delaminat$4 or fracture)) not ((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not (((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not 5288007.URPN. not (("5946590" \| "6030512").PN.) not (("5801446" \| "6213347" \| "6228680" \| "6245583").PN.) not ((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not (pad and (copper or Cu) and (tin or Sn) and (groove or grooved) and nascent) not 6365958.URPN. not 6365958.pn. not (("5801446" \| "6213347" \| "6228680" \| "6245583").PN.) not (castellations and corrugations and interconnection) | USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB | 2004/08/20 20:15 |
| 78 | 1857 | 438/612 | USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB | 2004/08/20 20:44 |

79	136	438/612 and (castellations or corrugations or grooves or texture or textured or contoured)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 20:44
80	106	(438/612 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/597 and (castellations or corrugations or grooves or texture or textured or contoured)) not 4937653.URPN. not (("5736790" | "5874780" | "5929521" | "5977632" | "6002172" | "6137184" | "6143639" | "6162997" | "6163957" | "6320254" | "6396156" | "6399896" | "6433426").PN.) not 5929521.URPN. not (("4937653" | "5185073" | "5929521" | "5962921" | "5977642" | "6088236" | "6150255").PN.) not 6088236.URPN. not (("4700473" | "4746621" | "5638598" | "6006764" | "6035527" | "6046910" | "6125531" | "6134118" | "6143646" | "6211487").PN.) not 6426241.URPN. not (("4442966" | "4818823" | "4836435" | "5241134" | "5344343" | "5446244" | "5519251" | "5545589" | "5628919" | "5823801" | "5828128" | "5879206" | "5889657" | "6005290" | "6040626" | "6083666" | "6137063" | "6324754").PN.) not 6426880.URPN. not 5875102.URPN. not (("5842275" | "5875102" | "6282782").PN.) not (438/108 and (castellations or corrugations or grooves or texture or textured or contoured)) not (((BDA or solder) near (castellations or corrugations))) not (((interconnection or pad) near (castellations or corrugations))) not (("4837130" | "5022043" | "5168401" | "5268978" | "5485481" | "5580466" | "5609778" | "5696666" | "5708294" | "5715263" | "5804882" | "6397465").PN.) not (((BGA or solder) and (texture or textured)) and ((interconnection or pad) near (texture or textured))) not (((BGA or solder) and (crack or cracks)) and ((interconnection or pad) near (grooves or grooved))) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (solder or ball)) not (((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and stress) and (delaminat$4 or fracture)) not ((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not (((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not 5288007.URPN. not (("5946590" | "6030512").PN.) not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not ((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not (pad and (copper or Cu) and (tin or Sn) and (groove or grooved) and nascent) not 6365958.URPN. not 6365958.pn. not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not (castellations and corrugations and interconnection)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 20:44

81	3	6287950.URPN.	USPAT	2004/08/20 20:18
82	5	("4628590" | "5731243" | "5807787" | "6060378" | "6200889").PN.	USPAT	2004/08/20 20:18
83	1733	438/613	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 20:45
84	135	438/613 and (castellations or corrugations or grooves or texture or textured or contoured)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 20:45

| 85 | | 56 | (438/613 and (castellations or corrugations or grooves or texture or textured or contoured)) not (("4628590" \| "5731243" \| "5807787" \| "6060378" \| "6200889").PN.) not 6287950.URPN. not (438/612 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/597 and (castellations or corrugations or grooves or texture or textured or contoured)) not 4937653.URPN. not (("5736790" \| "5874780" \| "5929521" \| "5977632" \| "6002172" \| "6137184" \| "6143639" \| "6162997" \| "6163957" \| "6320254" \| "6396156" \| "6399896" \| "6433426").PN.) not 5929521.URPN. not (("4937653" \| "5185073" \| "5929521" \| "5962921" \| "5977642" \| "6088236" \| "6150255").PN.) not 6088236.URPN. not (("4700473" \| "4746621" \| "5638598" \| "6006764" \| "6035527" \| "6046910" \| "6125531" \| "6134118" \| "6143646" \| "6211487").PN.) not 6426241.URPN. not (("4442966" \| "4818823" \| "4836435" \| "5241134" \| "5344343" \| "5446244" \| "5519251" \| "5545589" \| "5628919" \| "5823801" \| "5828128" \| "5879206" \| "5889657" \| "6005290" \| "6040626" \| "6083666" \| "6137063" \| "6324754").PN.) not 6426880.URPN. not 5875102.URPN. not (("5842275" \| "5875102" \| "6282782").PN.) not (438/108 and (castellations or corrugations or grooves or texture or textured or contoured)) not (((BDA or solder) near (castellations or corrugations))) not (((interconnection or pad) near (castellations or corrugations))) not (("4837130" \| "5022043" \| "5168401" \| "5268978" \| "5485481" \| "5580466" \| "5609778" \| "5696666" \| "5708294" \| "5715263" \| "5804882" \| "6397465").PN.) not (((BGA or solder) and (texture or textured)) and ((interconnection or pad) near (texture or textured))) not (((BGA or solder) and (crack or cracks)) and ((interconnection or pad) near (grooves or grooved))) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (solder or ball)) not (((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and stress) and (delaminat$4 or fracture)) not ((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not (((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not 5288007.URPN. not (("5946590" \| "6030512").PN.) not (("5801446" \| "6213347" \| "6228680" \| "6245583").PN.) not ((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not (pad and (copper or Cu) and (tin or Sn) and (groove or grooved) and nascent) not 6365958.URPN. not 6365958.pn. not (("5801446" \| "6213347" \| "6228680" \| "6245583").PN.) not (castellations and corrugations and interconnection) | USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB | 2004/08/20 20:45 |

| 86 | 404 | 438/615 | USPAT;
US-PGPUB;
EPO;
DERWENT;
IBM_TDB | 2004/08/20 20:46 |
| 87 | 29 | 438/615 and (castellations or corrugations or grooves or texture or textured or contoured) | USPAT;
US-PGPUB;
EPO;
DERWENT;
IBM_TDB | 2004/08/20 20:46 |

| 88 | 5 | (438/615 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/613 and (castellations or corrugations or grooves or texture or textured or contoured)) not (("4628590" \| "5731243" \| "5807787" \| "6060378" \| "6200889").PN.) not 6287950.URPN. not (438/612 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/597 and (castellations or corrugations or grooves or texture or textured or contoured)) not 4937653.URPN. not (("5736790" \| "5874780" \| "5929521" \| "5977632" \| "6002172" \| "6137184" \| "6143639" \| "6162997" \| "6163957" \| "6320254" \| "6396156" \| "6399896" \| "6433426").PN.) not 5929521.URPN. not (("4937653" \| "5185073" \| "5929521" \| "5962921" \| "5977642" \| "6088236" \| "6150255").PN.) not 6088236.URPN. not (("4700473" \| "4746621" \| "5638598" \| "6006764" \| "6035527" \| "6046910" \| "6125531" \| "6134118" \| "6143646" \| "6211487").PN.) not 6426241.URPN. not (("4442966" \| "4818823" \| "4836435" \| "5241134" \| "5344343" \| "5446244" \| "5519251" \| "5545589" \| "5628919" \| "5823801" \| "5828128" \| "5879206" \| "5889657" \| "6005290" \| "6040626" \| "6083666" \| "6137063" \| "6324754").PN.) not 6426880.URPN. not 5875102.URPN. not (("5842275" \| "5875102" \| "6282782").PN.) not (438/108 and (castellations or corrugations or grooves or texture or textured or contoured)) not (((BDA or solder) near (castellations or corrugations))) not (((interconnection or pad) near (castellations or corrugations))) not (("4837130" \| "5022043" \| "5168401" \| "5268978" \| "5485481" \| "5580466" \| "5609778" \| "5696666" \| "5708294" \| "5715263" \| "5804882" \| "6397465").PN.) not (((BGA or solder) and (texture or textured)) and ((interconnection or pad) near (texture or textured))) not (((BGA or solder) and (crack or cracks)) and ((interconnection or pad) near (grooves or grooved))) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (solder or ball)) not (((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and stress) and (delaminat$4 or fracture)) not ((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not (((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not 5288007.URPN. not (("5946590" \| "6030512").PN.) not (("5801446" \| "6213347" \| "6228680" \| "6245583").PN.) not ((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not (pad and (copper or Cu) and (tin or Sn) and (groove or grooved) and nascent) not 6365958.URPN. not 6365958.pn. not (("5801446" \| "6213347" \| "6228680" \| "6245583").PN.) not (castellations and corrugations and interconnection) | USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB | 2004/08/20 20:46 |

| 89 | 988 | 438/666 | USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB | 2004/08/20 20:47 |
| 90 | 87 | 438/666 and (castellations or corrugations or grooves or texture or textured or contoured) | USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB | 2004/08/20 20:47 |

| 91 | 63 | (438/666 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/615 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/613 and (castellations or corrugations or grooves or texture or textured or contoured)) not (("4628590" \| "5731243" \| "5807787" \| "6060378" \| "6200889").PN.) not 6287950.URPN. not (438/612 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/597 and (castellations or corrugations or grooves or texture or textured or contoured)) not 4937653.URPN. not (("5736790" \| "5874780" \| "5929521" \| "5977632" \| "6002172" \| "6137184" \| "6143639" \| "6162997" \| "6163957" \| "6320254" \| "6396156" \| "6399896" \| "6433426").PN.) not 5929521.URPN. not (("4937653" \| "5185073" \| "5929521" \| "5962921" \| "5977642" \| "6088236" \| "6150255").PN.) not 6088236.URPN. not (("4700473" \| "4746621" \| "5638598" \| "6006764" \| "6035527" \| "6046910" \| "6125531" \| "6134118" \| "6143646" \| "6211487").PN.) not 6426241.URPN. not (("4442966" \| "4818823" \| "4836435" \| "5241134" \| "5344343" \| "5446244" \| "5519251" \| "5545589" \| "5628919" \| "5823801" \| "5828128" \| "5879206" \| "5889657" \| "6005290" \| "6040626" \| "6083666" \| "6137063" \| "6324754").PN.) not 6426880.URPN. not 5875102.URPN. not (("5842275" \| "5875102" \| "6282782").PN.) not (438/108 and (castellations or corrugations or grooves or texture or textured or contoured)) not (((BDA or solder) near (castellations or corrugations))) not (((interconnection or pad) near (castellations or corrugations))) not (("4837130" \| "5022043" \| "5168401" \| "5268978" \| "5485481" \| "5580466" \| "5609778" \| "5696666" \| "5708294" \| "5715263" \| "5804882" \| "6397465").PN.) not (((BGA or solder) and (texture or textured)) and ((interconnection or pad) near (texture or textured))) not (((BGA or solder) and (crack or cracks)) and ((interconnection or pad) near (grooves or grooved))) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (solder or ball)) not (((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and stress) and (delaminat\$4 or fracture)) not ((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and stress) and (delaminat\$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat\$4 or fracture)) not (((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat\$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not 5288007.URPN. not (("5946590" \| "6030512").PN.) not (("5801446" \| "6213347" \| "6228680" \| "6245583").PN.) not ((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not (pad and (copper or Cu) and (tin or Sn) and (groove or grooved) and nascent) not 6365958.URPN. not 6365958.pn. not (("5801446" \| "6213347" \| "6228680" \| "6245583").PN.) not (castellations and corrugations and interconnection) | USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB | 2004/08/20 20:47 |

92	1947	438/687	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 20:47
93	242	438/687 and (castellations or corrugations or grooves or texture or textured or contoured)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 20:50

| 94 | 188 | (438/687 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/666 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/615 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/613 and (castellations or corrugations or grooves or texture or textured or contoured)) not (("4628590" | "5731243" | "5807787" | "6060378" | "6200889").PN.) not 6287950.URPN. not (438/612 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/597 and (castellations or corrugations or grooves or texture or textured or contoured)) not 4937653.URPN. not (("5736790" | "5874780" | "5929521" | "5977632" | "6002172" | "6137184" | "6143639" | "6162997" | "6163957" | "6320254" | "6396156" | "6399896" | "6433426").PN.) not 5929521.URPN. not (("4937653" | "5185073" | "5929521" | "5962921" | "5977642" | "6088236" | "6150255").PN.) not 6088236.URPN. not (("4700473" | "4746621" | "5638598" | "6006764" | "6035527" | "6046910" | "6125531" | "6134118" | "6143646" | "6211487").PN.) not 6426241.URPN. not (("4442966" | "4818823" | "4836435" | "5241134" | "5344343" | "5446244" | "5519251" | "5545589" | "5628919" | "5823801" | "5828128" | "5879206" | "5889657" | "6005290" | "6040626" | "6083666" | "6137063" | "6324754").PN.) not 6426880.URPN. not 5875102.URPN. not (("5842275" | "5875102" | "6282782").PN.) not (438/108 and (castellations or corrugations or grooves or texture or textured or contoured)) not (((BDA or solder) near (castellations or corrugations))) not (((interconnection or pad) near (castellations or corrugations))) not (("4837130" | "5022043" | "5168401" | "5268978" | "5485481" | "5580466" | "5609778" | "5696666" | "5708294" | "5715263" | "5804882" | "6397465").PN.) not (((BGA or solder) and (texture or textured)) and ((interconnection or pad) near (texture or textured))) not (((BGA or solder) and (crack or cracks)) and ((interconnection or pad) near (grooves or grooved))) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (solder or ball)) not (((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and stress) and (delaminat$4 or fracture)) not ((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not (((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not 5288007.URPN. not (("5946590" | "6030512").PN.) not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not ((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not (pad and (copper or Cu) and (tin or Sn) and (groove or grooved) and nascent) not 6365958.URPN. not 6365958.pn. not (("5801446" | "6213347" | "6228680" | "6245583").PN.) | USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB | 2004/08/20 20:50 |

95	516	bump and (copper or Cu) and (tin or Sn) and (groove or grooved)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 20:51

| 96 | 327 | (bump and (copper or Cu) and (tin or Sn) and (groove or grooved)) not (438/687 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/666 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/615 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/613 and (castellations or corrugations or grooves or texture or textured or contoured)) not (("4628590" | "5731243" | "5807787" | "6060378" | "6200889").PN.) not 6287950.URPN. not (438/612 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/597 and (castellations or corrugations or grooves or texture or textured or contoured)) not 4937653.URPN. not (("5736790" | "5874780" | "5929521" | "5977632" | "6002172" | "6137184" | "6143639" | "6162997" | "6163957" | "6320254" | "6396156" | "6399896" | "6433426").PN.) not 5929521.URPN. not (("4937653" | "5185073" | "5929521" | "5962921" | "5977642" | "6088236" | "6150255").PN.) not 6088236.URPN. not (("4700473" | "4746621" | "5638598" | "6006764" | "6035527" | "6046910" | "6125531" | "6134118" | "6143646" | "6211487").PN.) not 6426241.URPN. not (("4442966" | "4818823" | "4836435" | "5241134" | "5344343" | "5446244" | "5519251" | "5545589" | "5628919" | "5823801" | "5828128" | "5879206" | "5889657" | "6005290" | "6040626" | "6083666" | "6137063" | "6324754").PN.) not 6426880.URPN. not 5875102.URPN. not (("5842275" | "5875102" | "6282782").PN.) not (438/108 and (castellations or corrugations or grooves or texture or textured or contoured)) not (((BDA or solder) near (castellations or corrugations))) not (((interconnection or pad) near (castellations or corrugations))) not (("4837130" | "5022043" | "5168401" | "5268978" | "5485481" | "5580466" | "5609778" | "5696666" | "5708294" | "5715263" | "5804882" | "6397465").PN.) not (((BGA or solder) and (texture or textured)) and ((interconnection or pad) near (texture or textured))) not (((BGA or solder) and (crack or cracks)) and ((interconnection or pad) near (grooves or grooved))) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (solder or ball)) not (((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and stress) and (delaminat$4 or fracture)) not ((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not (((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not 5288007.URPN. not (("5946590" | "6030512").PN.) not (("5801446" | "6213347" | "6228680" | "6245583").PN.) not ((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not (pad and (copper or Cu) and (tin or Sn) and (groove or grooved) and | USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB | 2004/08/20 20:52 |

| 97 | 177 | ((bump and (copper or Cu) and (tin or Sn) and (groove or grooved)) not (438/687 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/666 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/615 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/613 and (castellations or corrugations or grooves or texture or textured or contoured)) not (("4628590" \| "5731243" \| "5807787" \| "6060378" \| "6200889").PN.) not 6287950.URPN. not (438/612 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/597 and (castellations or corrugations or grooves or texture or textured or contoured)) not 4937653.URPN. not (("5736790" \| "5874780" \| "5929521" \| "5977632" \| "6002172" \| "6137184" \| "6143639" \| "6162997" \| "6163957" \| "6320254" \| "6396156" \| "6399896" \| "6433426").PN.) not 5929521.URPN. not (("4937653" \| "5185073" \| "5929521" \| "5962921" \| "5977642" \| "6088236" \| "6150255").PN.) not 6088236.URPN. not (("4700473" \| "4746621" \| "5638598" \| "6006764" \| "6035527" \| "6046910" \| "6125531" \| "6134118" \| "6143646" \| "6211487").PN.) not 6426241.URPN. not (("4442966" \| "4818823" \| "4836435" \| "5241134" \| "5344343" \| "5446244" \| "5519251" \| "5545589" \| "5628919" \| "5823801" \| "5828128" \| "5879206" \| "5889657" \| "6005290" \| "6040626" \| "6083666" \| "6137063" \| "6324754").PN.) not 6426880.URPN. not 5875102.URPN. not (("5842275" \| "5875102" \| "6282782").PN.) not (438/108 and (castellations or corrugations or grooves or texture or textured or contoured)) not (((BDA or solder) near (castellations or corrugations))) not (((interconnection or pad) near (castellations or corrugations))) not (("4837130" \| "5022043" \| "5168401" \| "5268978" \| "5485481" \| "5580466" \| "5609778" \| "5696666" \| "5708294" \| "5715263" \| "5804882" \| "6397465").PN.) not (((BGA or solder) and (texture or textured)) and ((interconnection or pad) near (texture or textured))) not (((BGA or solder) and (crack or cracks)) and ((interconnection or pad) near (grooves or grooved))) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (solder or ball)) not (((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and stress) and (delaminat$4 or fracture)) not ((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not (((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not 5288007.URPN. not (("5946590" \| "6030512").PN.) not (("5801446" \| "6213347" \| "6228680" \| "6245583").PN.) not ((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not (pad and (copper or Cu) and (tin or Sn) and (groove or grooved) and | USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB | 2004/08/20 20:51 |

| 98 | 17 | ((bump and (copper or Cu) and (tin or Sn) and (groove or grooved)) not (438/687 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/666 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/615 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/613 and (castellations or corrugations or grooves or texture or textured or contoured)) not (("4628590" \| "5731243" \| "5807787" \| "6060378" \| "6200889").PN.) not 6287950.URPN. not (438/612 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/597 and (castellations or corrugations or grooves or texture or textured or contoured)) not 4937653.URPN. not (("5736790" \| "5874780" \| "5929521" \| "5977632" \| "6002172" \| "6137184" \| "6143639" \| "6162997" \| "6163957" \| "6320254" \| "6396156" \| "6399896" \| "6433426").PN.) not 5929521.URPN. not (("4937653" \| "5185073" \| "5929521" \| "5962921" \| "5977642" \| "6088236" \| "6150255").PN.) not 6088236.URPN. not (("4700473" \| "4746621" \| "5638598" \| "6006764" \| "6035527" \| "6046910" \| "6125531" \| "6134118" \| "6143646" \| "6211487").PN.) not 6426241.URPN. not (("4442966" \| "4818823" \| "4836435" \| "5241134" \| "5344343" \| "5446244" \| "5519251" \| "5545589" \| "5628919" \| "5823801" \| "5828128" \| "5879206" \| "5889657" \| "6005290" \| "6040626" \| "6083666" \| "6137063" \| "6324754").PN.) not 6426880.URPN. not 5875102.URPN. not (("5842275" \| "5875102" \| "6282782").PN.) not (438/108 and (castellations or corrugations or grooves or texture or textured or contoured)) not (((BDA or solder) near (castellations or corrugations))) not (((interconnection or pad) near (castellations or corrugations))) not (("4837130" \| "5022043" \| "5168401" \| "5268978" \| "5485481" \| "5580466" \| "5609778" \| "5696666" \| "5708294" \| "5715263" \| "5804882" \| "6397465").PN.) not (((BGA or solder) and (texture or textured)) and ((interconnection or pad) near (texture or textured))) not (((BGA or solder) and (crack or cracks)) and ((interconnection or pad) near (grooves or grooved))) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (solder or ball)) not (((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and stress) and (delaminat$4 or fracture)) not ((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not (((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not 5288007.URPN. not (("5946590" \| "6030512").PN.) not (("5801446" \| "6213347" \| "6228680" \| "6245583").PN.) not ((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not (pad and (copper or Cu) and (tin or Sn) and (groove or grooved) and | USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB | 2004/08/20 20:51· |

99	4646	bump and (copper or Cu) and (tin or Sn)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 20:51
100	703	(bump and (copper or Cu) and (tin or Sn)) and (castellations or corrugations or grooves or texture or textured or contoured)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 20:52
101	431	((bump and (copper or Cu) and (tin or Sn)) and (castellations or corrugations or grooves or texture or textured or contoured)) and (cracks or fractures or stress)	USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB	2004/08/20 20:52

| 102 | 210 | (((bump and (copper or Cu) and (tin or Sn)) and (castellations or corrugations or grooves or texture or textured or contoured)) and (cracks or fractures or stress)) not (438/687 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/666 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/615 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/613 and (castellations or corrugations or grooves or texture or textured or contoured)) not (("4628590" \| "5731243" \| "5807787" \| "6060378" \| "6200889").PN.) not 6287950.URPN. not (438/612 and (castellations or corrugations or grooves or texture or textured or contoured)) not (438/597 and (castellations or corrugations or grooves or texture or textured or contoured)) not 4937653.URPN. not (("5736790" \| "5874780" \| "5929521" \| "5977632" \| "6002172" \| "6137184" \| "6143639" \| "6162997" \| "6163957" \| "6320254" \| "6396156" \| "6399896" \| "6433426").PN.) not 5929521.URPN. not (("4937653" \| "5185073" \| "5929521" \| "5962921" \| "5977642" \| "6088236" \| "6150255").PN.) not 6088236.URPN. not (("4700473" \| "4746621" \| "5638598" \| "6006764" \| "6035527" \| "6046910" \| "6125531" \| "6134118" \| "6143646" \| "6211487").PN.) not 6426241.URPN. not (("4442966" \| "4818823" \| "4836435" \| "5241134" \| "5344343" \| "5446244" \| "5519251" \| "5545589" \| "5628919" \| "5823801" \| "5828128" \| "5879206" \| "5889657" \| "6005290" \| "6040626" \| "6083666" \| "6137063" \| "6324754").PN.) not 6426880.URPN. not 5875102.URPN. not (("5842275" \| "5875102" \| "6282782").PN.) not (438/108 and (castellations or corrugations or grooves or texture or textured or contoured)) not (((BDA or solder) near (castellations or corrugations))) not (((interconnection or pad) near (castellations or corrugations))) not (("4837130" \| "5022043" \| "5168401" \| "5268978" \| "5485481" \| "5580466" \| "5609778" \| "5696666" \| "5708294" \| "5715263" \| "5804882" \| "6397465").PN.) not (((BGA or solder) and (texture or textured)) and ((interconnection or pad) near (texture or textured))) not (((BGA or solder) and (crack or cracks)) and ((interconnection or pad) near (grooves or grooved))) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (solder or ball)) not (((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and stress) and (delaminat$4 or fracture)) not ((pad and (copper or Cu) and (tin or Sn) and (textured or texture)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (texture or textured)) and (crack or cracks)) not (((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not (((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and stress) and (delaminat$4 or fracture)) not ((interconnection and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not 5288007.URPN. not (("5946590" \| "6030512").PN.) not (("5801446" \| "6213347" \| "6228680" \| "6245583").PN.) not ((pad and (copper or Cu) and (tin or Sn) and (groove or grooved)) and (crack or cracks)) not (pad and (copper | USPAT; US-PGPUB; EPO; DERWENT; IBM_TDB | 2004/08/20 20:52 |